US ARMY RDECOM

U.S. Army Research, Development and Engineering Command

U.S. Army Training and Doctrine Command (TRADOC) Virtual World Project

Advanced Distributed Learning Co-Laboratory ImplementationFest 2010
12 August 2010

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

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Enhanced Dynamic Geo-Social Environment - Platform (EDGE-P)

- Project Definition
- Project Criteria
- Risks
- EDGE-P Proposed Architecture
- Candidate Technologies
- Conclusion

EDGE-P Project Definition

Create a unified virtual training environment with aggressive technical requirements. Blends traits from MMO, gaming and virtual world technology with the goal of replicating the operational environment as accurately as possible.

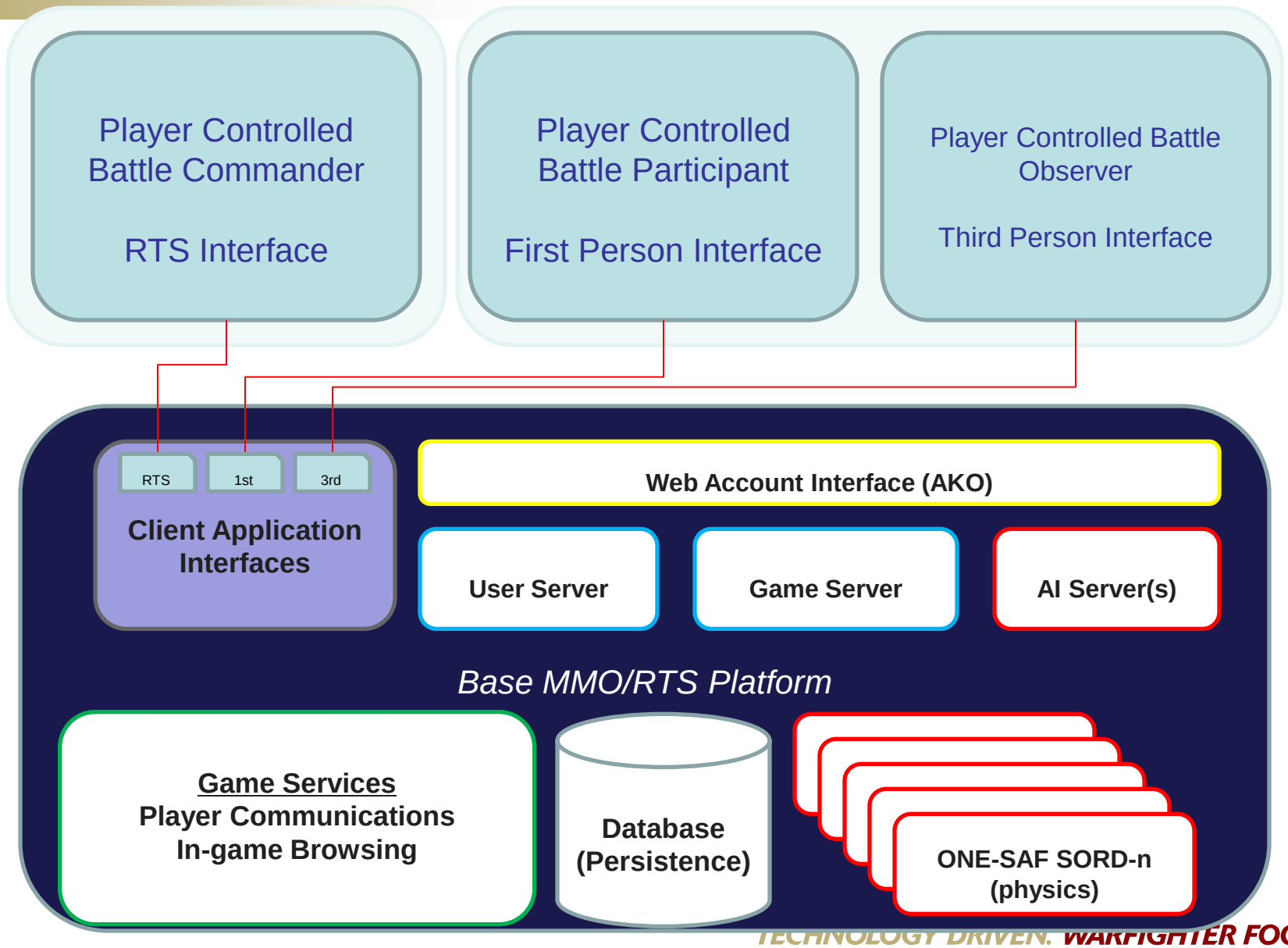
EDGE-P Project Criteria

- Accurate (physics, geometry, terrain, behaviors, visual presentation)
- Open Standards / Open API / Modular / Product Line Architecture
- Scalable (grow into large avatar numbers / terrain areas / AI / SAF)
- User refined interactions (scenario generation capabilities)

EDGE-P Risks

- Information Assurance – DIACAP capable
- Acceptable End-User Performance
- Load Balance
  - high avatar count vice network service
  - high avatar count vice accurate physics

EDGE-P System Concept Diagram



Candidate Technologies

- 4 “Game” Engines
- 1 “Virtual World Technology”
- 2 “Massively Multiplayer Online” Backends

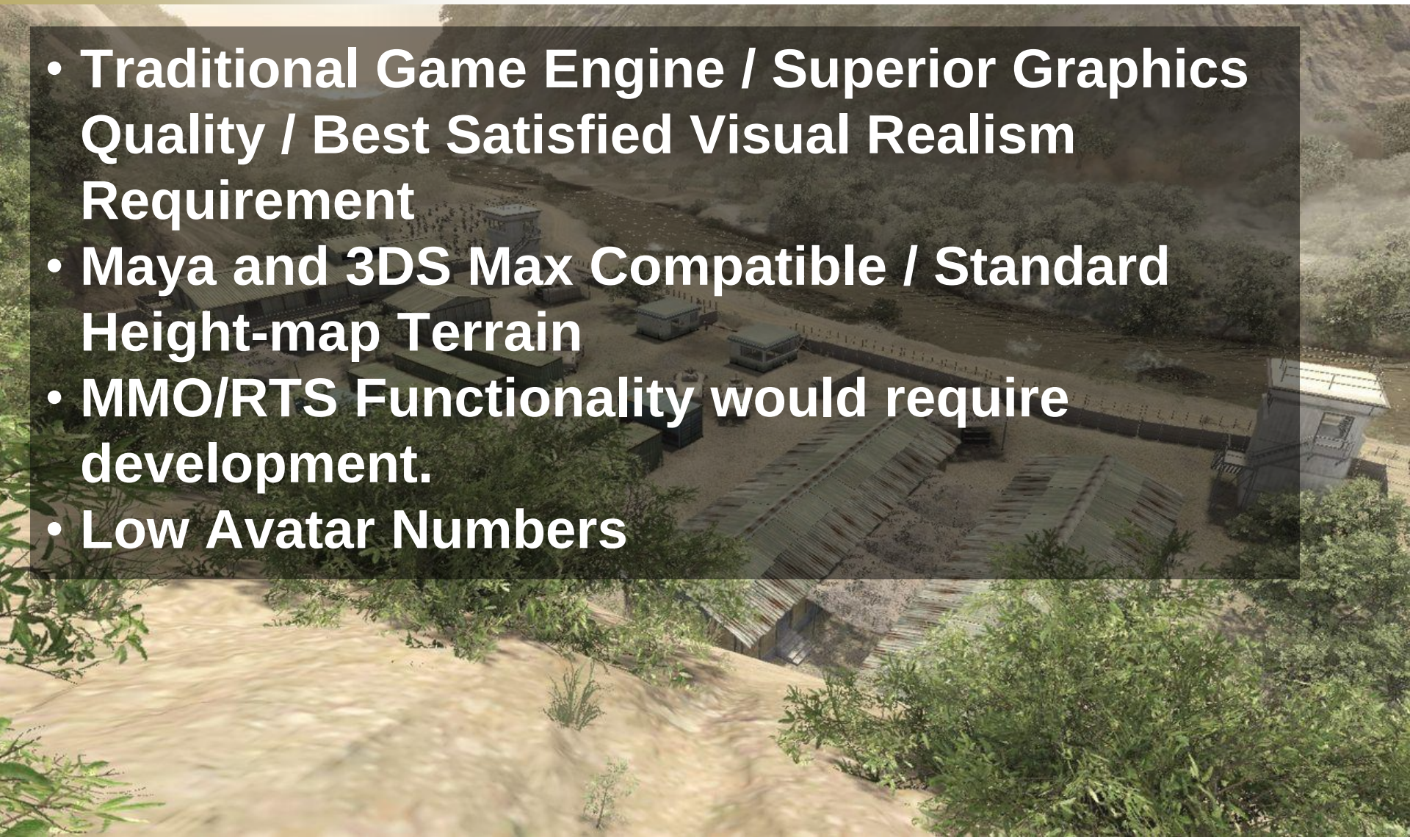
- At least one week development time devoted to each candidate.
- Same source models and terrain used where possible.
- Candidate technologies compared against project requirements.

Game Engine #1

- Traditional Game Engine
- Maya Compatible / Standard Height-map Terrain
- MMO/RTS Functionality would require development.

Game Engine #1

Game Engine #2



- Traditional Game Engine / Superior Graphics Quality / Best Satisfied Visual Realism Requirement
- Maya and 3DS Max Compatible / Standard Height-map Terrain
- MMO/RTS Functionality would require development.
- Low Avatar Numbers

Game Engine #2

Game Engine #3

- Traditional Game Engine
- Maya Compatible / Standard Height-map Terrain
- MMO/RTS Functionality would require development.
- Browser Based Applications

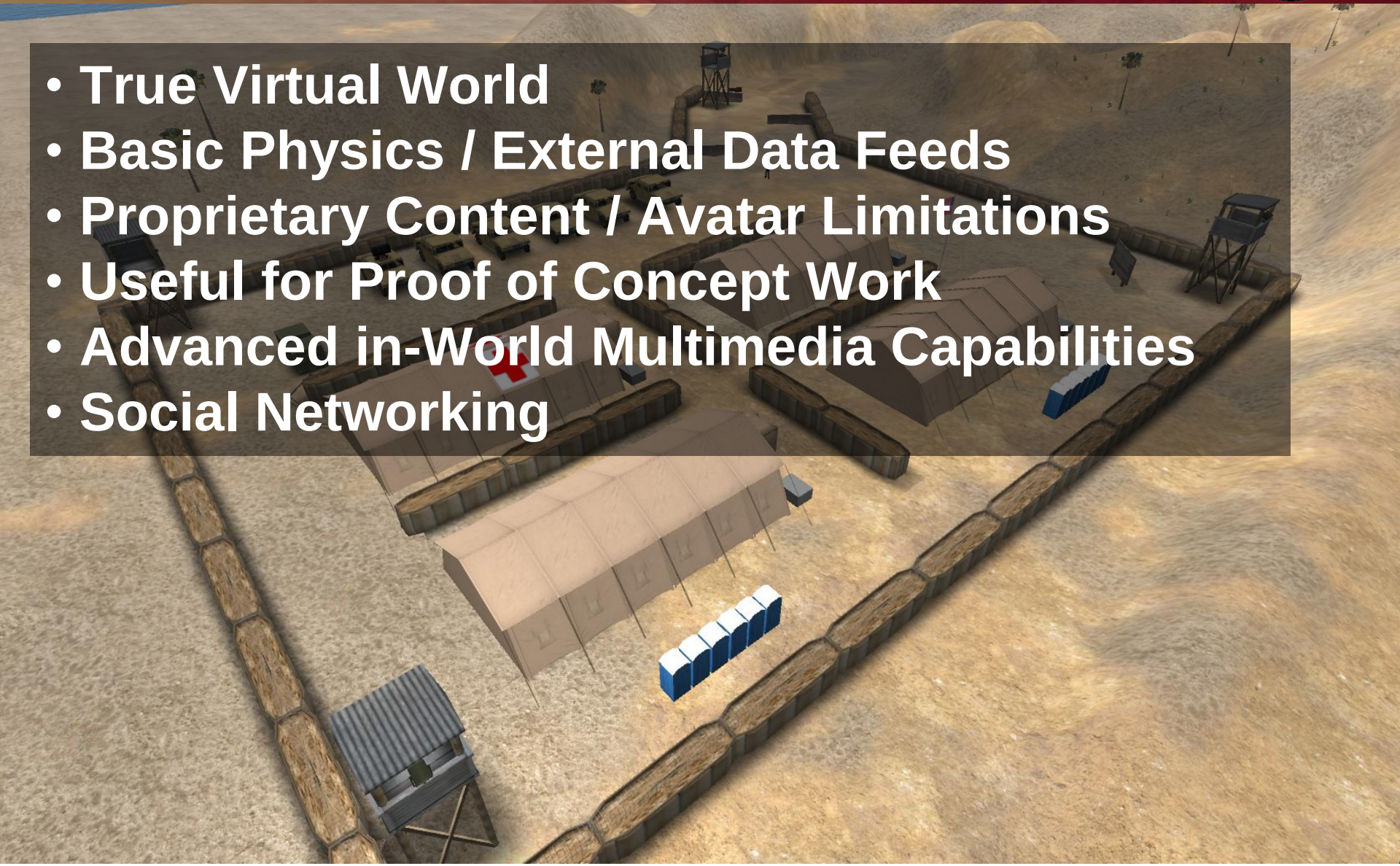
Game Engine #3

Game Engine #4

- Traditional Game Engine
- Maya Compatible / Standard Height-map Terrain
- MMO/RTS Functionality would require development.

Game Engine #4

Virtual World Technology

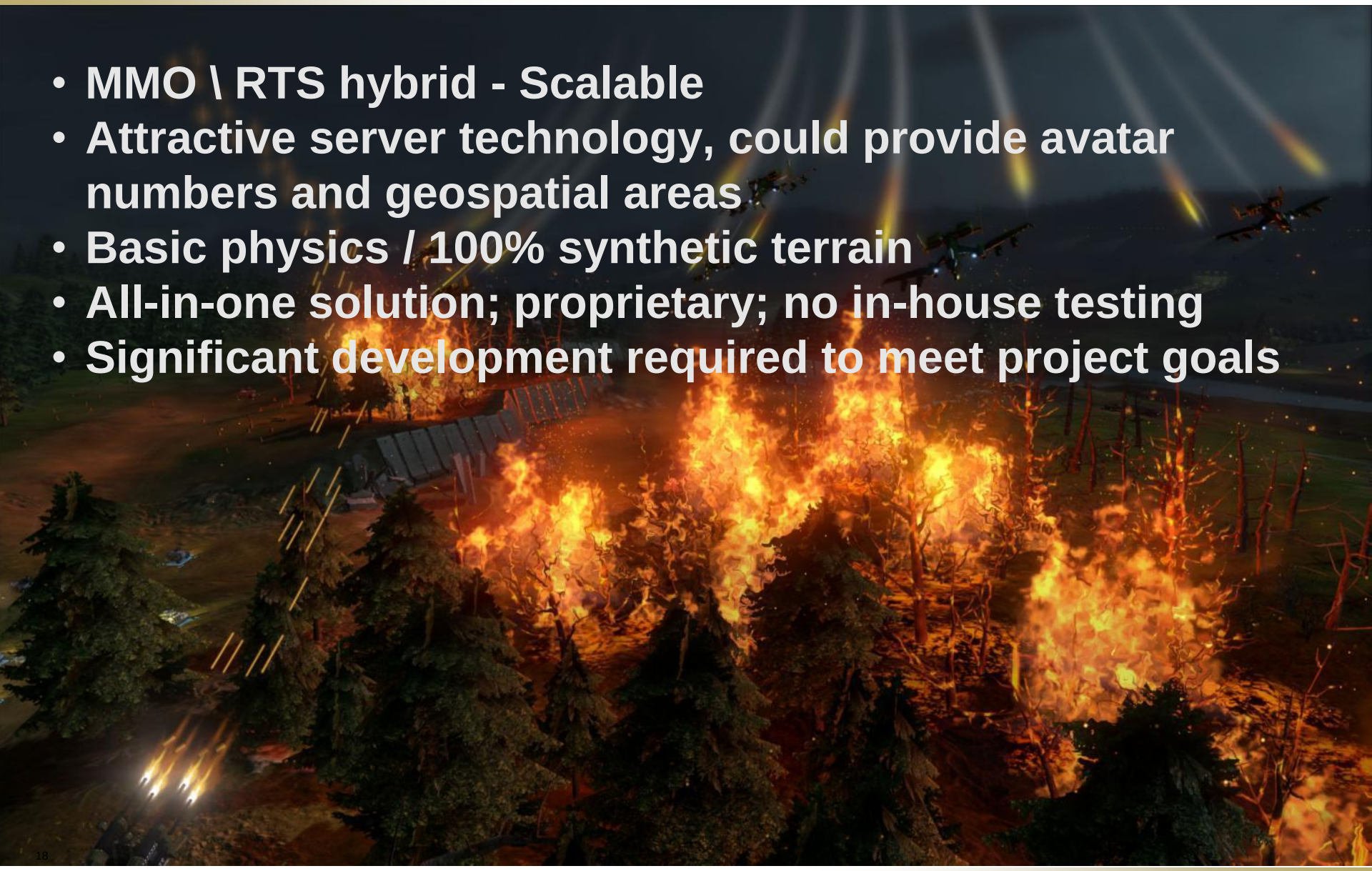


- True Virtual World
- Basic Physics / External Data Feeds
- Proprietary Content / Avatar Limitations
- Useful for Proof of Concept Work
- Advanced in-World Multimedia Capabilities
- Social Networking

Virtual World Technology

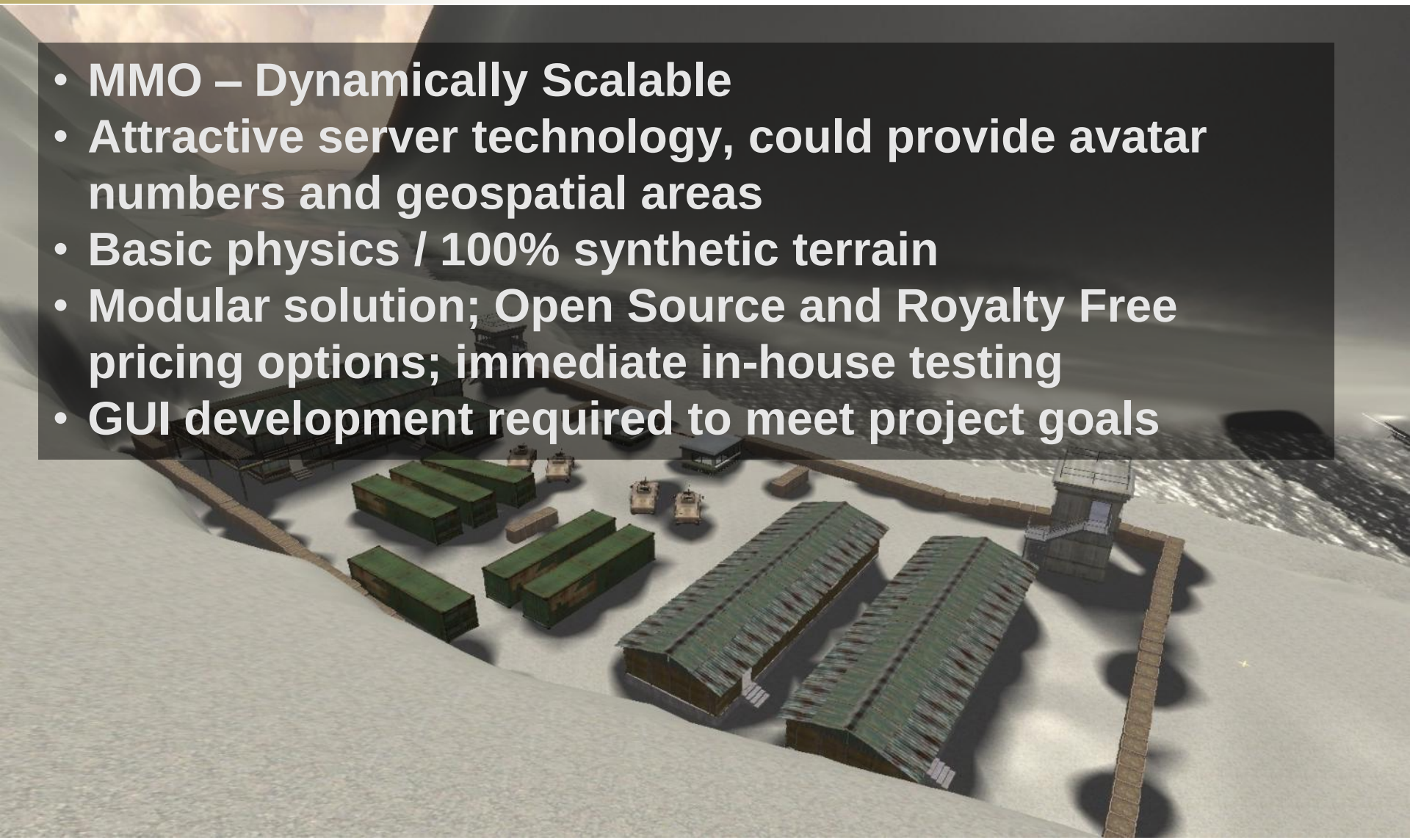
MMO #1

- MMO \ RTS hybrid - Scalable
- Attractive server technology, could provide avatar numbers and geospatial areas
- Basic physics / 100% synthetic terrain
- All-in-one solution; proprietary; no in-house testing
- Significant development required to meet project goals



MMO #2

MMO #2



- MMO – Dynamically Scalable
- Attractive server technology, could provide avatar numbers and geospatial areas
- Basic physics / 100% synthetic terrain
- Modular solution; Open Source and Royalty Free pricing options; immediate in-house testing
- GUI development required to meet project goals

MMO #2

Conclusion

- TRADOC seeks to create a large MMO/RTS/VWT to support future training needs.
- EDGE-P must be designed with IA, scalability, and accessibility issues addressed up front.
- Rapidly evolving gaming technology makes aggressive EDGE-P requirements achievable.